

**EITEL-McCULLOUGH, INC.**  
SAN CARLOS · CALIFORNIA

**TENTATIVE DATA**

**3CX10,000A7**

**HIGH-MU  
POWER TRIODE**

The Eimac 3CX10,000A7 is a ceramic and metal power triode intended to be used as a zero-bias Class-B amplifier in audio or radio-frequency applications. Operation with zero grid bias offers circuit simplicity by eliminating the bias supply. In addition, grounded-grid operation is attractive since a power gain as high as twenty times can be obtained with the 3CX10,000A7.

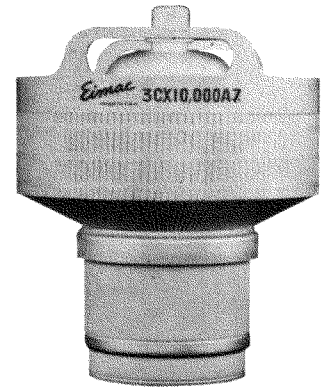
**GENERAL CHARACTERISTICS**

**ELECTRICAL**

|                               |   |   |   |   |     |         |   |         |
|-------------------------------|---|---|---|---|-----|---------|---|---------|
| Filament: Thoriated-Tungsten  |   |   |   |   |     |         |   |         |
| Voltage                       | - | - | - | - | 7.5 | volts   |   |         |
| Current                       | - | - | - | - | 100 | amperes |   |         |
| Amplification Factor          | - | - | - | - | 200 |         |   |         |
| Interelectrode Capacitances:  |   |   |   |   |     |         |   |         |
| Grid-Filament                 | - | - | - | - | -   | -       | - | 63 uuf  |
| Grid-Plate                    | - | - | - | - | -   | -       | - | 41 uuf  |
| Plate-Filament                | - | - | - | - | -   | -       | - | .05 uuf |
| Frequency for Maximum Ratings | - | - | - | - | -   | -       | - | 110 Mc  |

**MECHANICAL**

|                                 |   |   |   |   |   |   |   |                           |
|---------------------------------|---|---|---|---|---|---|---|---------------------------|
| Base                            | - | - | - | - | - | - | - | Coaxial                   |
| Recommended Socket              | - | - | - | - | - | - | - | Eimac SK-1300             |
| Operating Position              | - | - | - | - | - | - | - | Vertical, base up or down |
| Cooling                         | - | - | - | - | - | - | - | Forced air                |
| Maximum Operating Temperatures: |   |   |   |   |   |   |   |                           |
| Anode Core                      | - | - | - | - | - | - | - | 250°C                     |
| Ceramic-to-Metal Seals          | - | - | - | - | - | - | - | 250°C                     |
| Maximum Dimensions:             |   |   |   |   |   |   |   |                           |
| Height                          | - | - | - | - | - | - | - | 8.5 inches                |
| Diameter                        | - | - | - | - | - | - | - | 7.0 inches                |
| Net Weight                      | - | - | - | - | - | - | - | 12 pounds                 |



**R-F LINEAR AMPLIFIER  
GROUNDED-GRID, CLASS B**

**TYPICAL OPERATION, Single-Tone Conditions**

**MAXIMUM RATINGS**

|                   |                 |
|-------------------|-----------------|
| D-C PLATE VOLTAGE | 7000 MAX. VOLTS |
| D-C PLATE CURRENT | 5.0 MAX. AMPS   |
| PLATE DISSIPATION | 12 MAX. KW      |
| GRID DISSIPATION  | 500 MAX WATTS   |

|                             |        |        |       |
|-----------------------------|--------|--------|-------|
| D-C Plate Voltage           | 7000   | 7000   | volts |
| Zero-Sig D-C Plate Current* | 0.60   | 0.60   | amp   |
| Max-Sig D-C Plate Current   | 3.72   | 5.00   | amps  |
| Max-Sig D-C Grid Current    | 0.71   | 1.00   | amp   |
| Driving Impedance           | 35     | 32     | ohms  |
| Resonant Load Impedance     | 1020   | 745    | ohms  |
| Max-Sig Driving Power       | 885    | 1540   | watts |
| Peak Envelope Plate         |        |        |       |
| Output Power                | 17,700 | 24,200 | watts |
| Power Gain                  | 20.0   | 15.7   | times |

\*Approximate Values



AUDIO-FREQUENCY AMPLIFIER  
OR MODULATOR - CLASS B

TYPICAL OPERATION, Two Tubes, Sinusoidal  
Wave

|                            |                 |
|----------------------------|-----------------|
| MAXIMUM RATINGS (Per Tube) |                 |
| D-C PLATE VOLTAGE          | 7000 MAX. VOLTS |
| D-C PLATE CURRENT          | 5.0 MAX. AMPS   |
| PLATE DISSIPATION          | 12 MAX. KW      |
| GRID DISSIPATION           | 500 MAX. WATTS  |

|  |        |        |       |
|--|--------|--------|-------|
| D-C Plate Voltage                      | 7000   | 7000   | volts |
| D-C Grid Voltage                       | 0      | 0      | volts |
| Zero-Sig D-C Plate Current*            | 1.20   | 1.20   | amps  |
| Max-Sig D-C Plate Current              | 7.50   | 10.0   | amps  |
| Max-Sig D-C Grid Current               | 1.50   | 2.06   | amps  |
| Driving Power                          | 315    | 560    | watts |
| Peak A-F Driving Voltage<br>(Per Tube) | 250    | 310    | volts |
| Load Resistance, Plate-<br>to-Plate    | 2000   | 1520   | ohms  |
| Max-Sig Plate Output<br>Power          | 35,600 | 47,700 | watts |

R-F LINEAR AMPLIFIER  
CARRIER CONDITIONS, GROUNDED-GRID

TYPICAL OPERATION

|                   |                 |
|-------------------|-----------------|
| MAXIMUM RATINGS   |                 |
| D-C PLATE VOLTAGE | 7000 MAX. VOLTS |
| D-C PLATE CURRENT | 5.0 MAX. AMPS   |
| PLATE DISSIPATION | 12 MAX. KW      |
| GRID DISSIPATION  | 500 MAX. WATTS  |

|                             |      |       |
|-----------------------------|------|-------|
| D-C Plate Voltage           | 7000 | volts |
| D-C Grid Voltage            | 0    | volts |
| Zero-Sig D-C Plate Current* | 0.60 | amp   |
| D-C Plate Current           | 2.40 | amps  |
| D-C Grid Current            | 0.25 | amp   |
| Driving Impedance †         | 32   | ohms  |
| Peak Driving Voltage †      | 310  | volts |
| Driving Power               | 330  | watts |
| Plate Output Power          | 5650 | watts |

\*Approximate Values

†Modulation Crest Conditions

Note: "TYPICAL OPERATION" data are obtained by calculation from published characteristic curves and confirmed by direct tests. No allowance for circuit losses, either input or output, has been made.

| Plate**<br>Dissipation<br>(Watts) | Sea Level         |                                       | 10,000 Feet       |                                       |
|-----------------------------------|-------------------|---------------------------------------|-------------------|---------------------------------------|
|                                   | Air Flow<br>(CFM) | Pressure<br>Drop (Inches<br>of Water) | Air Flow<br>(CFM) | Pressure<br>Drop (Inches<br>of Water) |
| 4000                              | 85                | 0.18                                  | 125               | 0.25                                  |
| 6000                              | 145               | 0.38                                  | 210               | 0.55                                  |
| 8000                              | 215               | 0.68                                  | 315               | 0.99                                  |
| 10,000                            | 295               | 1.08                                  | 430               | 1.60                                  |
| 12,000                            | 390               | 1.62                                  | 565               | 2.35                                  |

\*\*Since the power dissipated by the filament is about 750 watts and since grid dissipation can, under some circumstances, represent another 500 watts, allowance has been made in preparing this tabulation for an additional 1250 watts dissipation.



### APPLICATION

Input Circuit -- When the 3CX10,000A7 is operated as a grounded-grid r-f amplifier, the use of a resonant tank in the cathode circuit is recommended in order to obtain greatest linearity and power output. For best results with a single-ended amplifier it is suggested that the cathode tank circuit operate at a "Q" of five or more.

Cooling - The maximum temperature rating for the external surfaces of the 3CX10,000A7 is 250°C. Sufficient forced-air cooling must be provided to keep the temperature of the anode core and the temperature of the ceramic-metal seals below 250°C. Tube life is usually prolonged if these areas are maintained at temperatures below this maximum rating. Minimum air-flow requirements to maintain anode-core and seal temperatures below 225°C with an inlet-air temperature of 50°C are tabulated.

Filament Operation - The rated filament voltage for the 3CX10,000A7 is 7.5 volts. Filament voltage, as measured at the socket, should be maintained at this value to obtain maximum tube life. In no case should it be allowed to deviate from the rated value by more than five percent.

Special Applications - If it is desired to operate this tube under conditions widely different from those given here, write to Power Grid Tube Marketing, Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, California, for information and recommendations.

| DIM | NOM.    | MIN. | MAX. |
|-----|---------|------|------|
| A   | .740    |      |      |
| B   | 1.916   |      |      |
| C   | 3.153   |      |      |
| D   | 3.803   |      |      |
| E   | 4.185   |      |      |
| F   | 1/4     |      |      |
| G   | .384    |      |      |
| H   | .864    |      |      |
| J   | 1/4     |      |      |
| K   | 2.706   |      |      |
| L   | 4 3/16  |      |      |
| M   | 6 5/16  |      |      |
| N   | 8 1/2   |      |      |
| P   | 1       |      |      |
| Q   | .875    |      |      |
| R   | 3/16    |      |      |
| S   | 1/2     |      |      |
| T   | 1 13/16 |      |      |
| U   | .394    |      |      |
| V   | 1/4     |      |      |
| W   | 6.995   |      |      |

